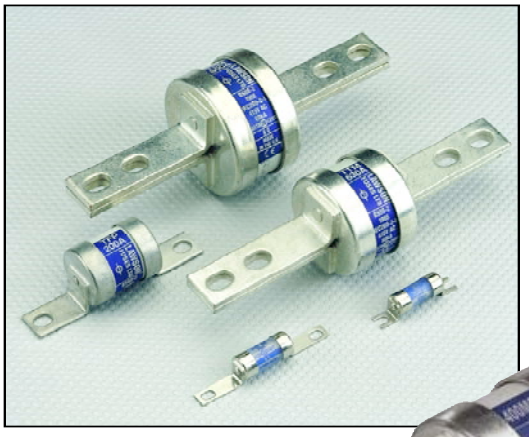
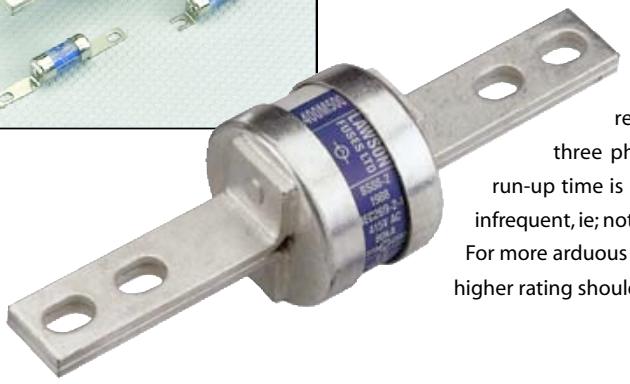
LAWSON FUSES
power safe solutions

MOTOR CIRCUIT PROTECTION FUSE-LINKS

400/415 Volt Industrial Fuse-Links with Bolted Connections to BS88: Part 2 • IEC60269-2 • EN60269-2

Rated voltage: 415V a.c. Breaking range and utilization category: gM Rated breaking capacity: 80kA at 415V a.c.





To avoid nuisance fuse-link operation due to overcurrent starting surges, fuse-links used in motor circuits often require higher ratings than the full load current of the motor. Motor circuit protection fuse-links have a dual current rating, consisting of a continuous current rating and a rating relating to the operational characteristics. The letter 'M' separates these two ratings, for example, 32M50. This represents a fuse-link with a maximum continuous current rating of 32 Amps, and an operational characteristic of 50 Amps rating to meet the motor starting current.

The table below shows the recommended fuse-links for various sizes of three phase 415V a.c. induction motors, where the run-up time is less than five seconds and the starting duty infrequent, ie; not more than twice per hour. For more arduous conditions the next higher rating should be used.

FUSE-LINK SELECTION FOR 3 PHASE 415V a.c. INDUCTION MOTOR CIRCUITS

MOTOR RATING			DIRECT-ON-LINE START (7xFLC for 10 sec) FUSE-LINK RATING (AMPERES)		ASSISTED START (3.5xFLC for 20 sec) FUSE-LINK RATING (AMPERES)	
KW	HP	FLC	"gG"	"gM"	"gG"	"gM"
0.75	1	2	6	-	4	-
1.1	1.5	2.5	10	-	6	-
1.5	2	3.5	10	-	6	-
2.2	3	5	16	-	10	-
3	4	6.5	20	-	16	-
4	5	8	25	20M25	16	-
5.5	7.5	11	32	20M32	20	-
7.5	10	14	40	32M40	25	20M25
10	13.5	19	50	32M50	32	20M32
11	15	21	50	32M50	32	-
15	20	28	63	32M63	40	32M40
18.5	25	35	80	63M80	50	-
22	30	41	100	63M100	50	-
26	35	48	100	63M100	63	-
30	40	55	125	100M125	80	63M80
33	45	62	160	100M160	80	63M80
37	50	69	160	100M160	100	-
45	60	83	200	100M200	100	-
53	70	97	200	100M200	125	100M125
55	75	100	200	100M200	125	100M125
60	80	110	250	200M250	160	-
67	90	120	250	200M250	160	-
75	100	135	250	200M250	160	-
90	120	160	315	200M315	200	-
93	125	170	355*	315M400*	200	-
110	150	200	400	315M400*	250	200M250
130	175	230	400	315M400*	315	-
150	200	260	450*	400M500*	315	-
160	215	280	500	400M500*	355*	315M400*
170	225	290	500	400M500*	355*	315M400*
180	250	320	560*	-	400	-
200	270	350	630	-	400	-
220	300	380	670*	-	450	400M500*
250	335	420	710*	-	500	-
260	350	450	750*	-	560*	-
300	400	500	800	-	630	-

MAXIMUM FULL LOAD CURRENT STARTING CAPABILITY

DIRECT-ON-LINE START (7xFLC for 10 sec) FUSE-LINK RATING (AMPERES)		MAXIMUM MOTOR FLC	ASSISTED START (3.5xFLC for 20 sec) FUSE-LINK RATING (AMPERES)		MAXIMUM MOTOR FLC
"gG"	"gM"		"gG"	"gM"	
2	-	0.6	2	-	1.3
4	-	1.3	4	-	2.4
6	-	2.3	6	-	4.3
10	-	4.1	10	-	6.4
16	-	6.0	16	-	11
20	-	7.9	20	-	14
25	20M25	10	25	20M25	19
32	20M32	13	32	-	24
40	32M40	18	40	32M40	31
50	32M50	26	50	-	46
63	32M63	30	63	-	51
80	63M80	40	80	-	69
100	63M100	54	100	-	94
125	100M125	61	125	-	110
160	100M160	82	160	-	150
200	-	110	200	-	180
250	200M250	150	250	-	220
315	200M315	170	315	-	250
355*	315M400*	200	355*	-	310
400	315M400*	240	400	-	340
450*	400M500*	280	450*	400M500*	380
500	400M500*	310	500	-	430
560*	-	350	560*	-	460
630	-	380	630	-	500
670*	-	420	670*	-	530
710*	-	450	710*	-	550
750*	-	480	750*	-	570
800	-	510	800	-	600

* Non-Standardized current rating additional to BS 88: Part 2

This data is based upon normal conditions and average efficiencies and power factors. Conditions such as long run-up times, large numbers of starts in succession, high ambient temperatures or abnormal transients during star/delta switching may necessitate adjustments to fuse-link selection.

For detailed dimensioned outline drawings see pages 5 & 8

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PRODUCT DETAIL AND PERFORMANCE DATA

Product detail - Dual Rated Fuse-Links - Offset Tag

List Reference	Current Rating (A)	BS88 Reference	Voltage Rating (V)	Breaking Capacity (kA)	BS Standard	IEC Standard	Carton Quantity	Carton Weight (Kg)
NIT	20M25,20M32	A1	415a.c.	80kA-a.c.	BS88: Part 2	60269-2	10	0.13
TIA	32M40,32M50,32M63	A2					10	0.54
TIS	63M80,63M100,100M125	A3					10	0.70
TCP	100M125,100M160	A4					5	0.82
TCP	100M200	A4					5	0.82
TFP	200M250,200M315	(as A4)					1	0.24

Product detail - Dual Rated Fuse-Links - Central Tag

List Reference	Current Rating (A)	BS88 Reference	Voltage Rating (V)	Breaking Capacity (kA)	BS Standard	IEC Standard	Carton Quantity	Carton Weight (Kg)
TB	63M80,63M100	-	415a.c..	80kA-a.c..	BS88: Part 2	60269-2	10	0.72
TBC	63M80,63M100	(as B1)					10	0.72
TC	100M125,100M160	B1					5	0.85
TC	100M200	B1					5	0.85
TF	200M250,200M315	B2					1	0.24
TKF	315M400	B3					1	0.43
TMF	400M500	B4					1	0.55
TM	400M500	C1					1	0.74

Product detail - Dual Rated Fuse-Links - Compact Dimension

List Reference	Current Rating (A)	BS88 Reference	Voltage Rating (V)	Breaking Capacity (kA)	BS Standard	IEC Standard	Carton Quantity	Carton Weight (Kg)
NS	20M25, 20M32	F1	415a.c.	80kA-a.c.	BS88: Part 6	60269-2	10	0.18
NS	32M40,32M50,32M63	-					10	0.32

Performance Data - Dual Rated Fuse-Links - Offset Tag

List Reference	Current Rating (A) Cont	Motor	BS88 Reference	Utilization Category
NIT	20	25	A1	gM
NIT	20	32	A1	
TIA	32	40	A2	
TIA	32	50	A2	
TIA	32	63	A2	
TIS	63	80	A3	
TIS	63	100	A3	
TIS	100	125	A3	
TCP	100	125	A4	
TCP	100	160	A4	
TCP	100	200	A4	
TFP	200	250	(as A4)	
TFP	200	315	(as A4)	

PerformanceData - Dual Rated Fuse-Links - Centrd Tag

List Reference	Current Rating (A) Cont	Motor	BS88 Reference	Utilization Category
TB	63	80	-	gM
TB	63	100	-	
TBC	63	80	(asB1)	
TBC	63	100	(asB1)	
TC	100	125	B1	
TC	100	160	B1	
TC	100	200	B1	
TF	200	250	B2	
TF	200	315	B2	
TKF	315	400	B3	
TMF	400	500	B4	
TM	400	500	C1	

Performance Data - Dual Rated Fuse-Links - Compact Dimension

List Reference	Current Rating (A) Cont	Motor	BS88 Reference	Utilization Category
NS	20	25	F1	gM
NS	20	32	F1	
NS	32	40	-	
NS	32	50	-	
NS	32	63	-	

NOTE: Cont= Continuous Current. Motor = Motor Starting Current

See pages 22,23 & 25 for the time/current and cut-off current characteristics.

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